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ABSTRACT

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Teacher demand: crisis what crisis?

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Abstract

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Introduction to the crisis

Considerable media attention has been devoted to the issue of teacher supply in secondary schools in the UK, particularly from the mid-1990s onwards, when teacher vacancies rose year-on-year before peaking in 2001, a year which witnessed the highest pupil-teacher ratios since 1976. The number of designated 'shortage subjects' had also increased, and in England and Wales serious shortages were reported in mathematics, science, modern foreign languages and technology (DfEE, 1998). English Language, which had previously not had a problem with teacher supply, was for the first time considered a shortage subject (School Teachers' Review Body, 2001). In Wales, Estyn (the Welsh Schools' Inspectorate) reported additional shortages in Welsh, ICT, geography, RE, art and music (submission to the School Teachers' Review Body, 2002).

Teacher shortages in these subjects were exacerbated by geographical disparaties (see later discussion). The number of vacancies and the length of time taken to fill them had become particularly problematic in London and the South-East (School Teachers' Review Body, 2001). It may have been figures like these that sparked concerns of a 'crisis', illustated by one commentator's report that 'the teacher recruitment crisis in Wales is laid bare today as an authoritative report reveals that schools all over the country are struggling to fill posts' (Rees, 2002, p.1).

Comments to the media from the Chief Inspector of Schools in England, for 2001, suggested that the recent teacher 'shortage' was the worst for nearly 40 years (BBC News, 2001a). According to a Guardian survey, official figures from 100 education authorities showed that vacancies amounted to 3,500 full-time posts (Smithers, 2001a). Headlines appeared in the *Times Educational Supplement* (*TES*) proclaiming that the 'Country has run out of teachers' (Dean, 2000) and that, 'Staff crisis worsens as thousands quit' (Dean, 2001). In the *TES* and elsewhere, published stories included: schools being forced to go on four-day weeks (House of Commons Hansard Debates, 2000, column 288; Woodward, 2001), pupils being sent home because there were no teachers (Hutchins, 2001), recruitment failing to meet targets (Schoolsnet, 2001), teachers leaving in droves (House of Commons Hansard Debates, 2000) and heads relying on foreign teachers with poor command of English (Smithers, 2001b).

In one TES article (Mansell and Coulter, 2000) several local authorities reported rising numbers of teacher resignations. Government statistics showed that the proportion of teachers in the secondary sector who were leaving for other employment had increased from 0.3% in 1993 to 0.7% in 1999 (School Teachers' Review Body, 2001). More teachers were also reported to be leaving than entering teaching in 1999 giving a net loss of 14,300 teachers. What was more worrying was that teachers who left were not very likely to return. Government figures showed that returners to full-time teaching which accounted for 50% of recruitment in 1992 had fallen to 39% in 2001 (School Teachers' Review Body, 2001). Although there are many reasons why teachers might leave, the greatest concern surrounded those leaving the profession prematurely. According to a

TES report more than 40,000 teachers below the age of 40, and a further 26,000 aged between 40 and 50, quit between 1993 and 1999 (Dean, 2001).

Schools are therefore seen as severely short of staff, while government statistics do not necessarily reveal the real the scale of the problem because of the use of 'underqualified' teachers (The School Teachers' Review Body 11th Report 2002). There are concerns that 'insufficient high quality entrants were being attracted in comparison to other professions' and 'the quality of entrants was low in shortage subject areas' (House of Commons, 1997; BBC News, 2001b). In a survey by the National Association of Head Teachers (NAHT), seven out of ten vacancies in secondary schools in a London authority had been filled by people without the necessary qualifications (Levenson, 2001). The shortage in teachers was apparently affecting the quality of teachers, especially those in the shortage subject areas (Report of Sir Gareth Roberts' Review 2002). There are also concerns that teaching is not attracting enough men (School Teachers' Review Body, 2001), and that the teaching population is ageing, leading to a retirement 'timebomb' (Howson, 2001). Overall, the picture of teacher demand is one of crisis, and several academics now appear to take to the story of teachers shortages as read (e.g. Bird 2002a). This paper examines the popular measures of teacher shortages to determine if there is indeed a 'crisis'.

Method

The focus of the research reported here, conducted for the General Teaching Council of Wales, is the number of teachers in Wales, but some of the figures are only available for the UK, England, or England and Wales, and are therefore used instead. Our larger study shows that trends for the UK and England are similar to those for Wales (White, See, Gorard and Roberts 2000).

Sources of data

The work is based on secondary data sources relevant to teacher recruitment and retention. While using secondary sources has obvious limitations and dangers (see Gorard 2003), as does the use of any one approach, these data represent large-scale repeated multi-faceted national indicators that can be disaggregated into appropriate levels and sub-groups. They can, therefore, provide a valuable corrective to the conclusions of more local and sometimes merely anecdotal commentaries. Data were taken from DfEE Statistics of Education: Teachers in England and Wales 2000, 2001), the School Teachers' Review Body Statistical Annex (2000) and the School Teachers' Review Body Eleventh Report (2002). Other sources include the following:

- Education and Learning Wales (ELWa) - http://www.elwa.ac.uk.
- The Graduate Teacher Training Registry (GTTR) which provided *Annual Statistical Reports* from 2000 and 2001 - http://www.gttr.ac.uk.
- The National Assembly for Wales (NAfW) - http://www.wales.gov.uk/index.htm or http://www.wales.gov.uk/keypubstatisticsforwales/index.htm.
- The Office for National Statistics (ONS) - http://www.statistics.gov.uk/. Where original sources were not stated, and when ONS was the first point of contact, sources are listed as 'National Statistics'. See http://www.statistics.gov.uk/.
- The Universities Council for the Education of Teachers (UCET) website contains summaries of on-going and past research in the area. See http://www.ucet.ac.uk/.

These data provided some problems and inconsistencies. Most notably, in the academic year 1997/98 a new form (Stats 3) replaced the one previously used (618G) in Wales to collect data on teacher vacancies. Some of the change shown in the data for this year may, then, be an artefact of the change in instrument used to collect the relevant data.

Definitions

The definitions adopted here are those used by the School Teachers' Review Body (2002), and by the DfES for the pupil:teacher ratio. These definitions are outlined below. The remainder of this section is devoted to exploring some issues raised by these

definitions. It is important to explore the implications of their use as, in some cases, the nomenclature employed by different organisations can lead to misinterpretation of the teacher supply situation.

(i) Wastage

Wastage is a measure of all teachers leaving full-time service in the maintained sector during a school year. It is important to note, however, that some of these may not actually leave teaching, but either continue into part-time service or move to a different sector (e.g. the independent, further and higher education sectors). Wastage is a term that can be particularly misleading as its meaning in terms of the STRB definition differs significantly from its use in standard English. As used by the STRB it includes teachers moving between positions in schools and colleges *within* the state sector, if that move involves moving between institutions teaching different age ranges of students (e.g. from a primary school to a secondary school). It also includes moves from schools to further and/or higher education colleges and *vice versa*. In terms of resourcing, such changes in the staffing structure of a state education system would not normally be considered 'wasteful' and so it is important not to conflate 'wastage rates', as technically defined, with wastage of resources. It should also be noted that, theoretically at least, high 'wastage rates' can exist in a situation where no teachers at all are leaving state education.

(ii) Turnover

Turnover is measured by calculating the proportion of teachers not in full-time service in the institution in which they were working in the previous academic year. This includes *all* retirements, resignations, wastage (as defined above) and transfers to other institutions (including those in the same sector). When examining 'turnover' rates within the teaching profession the following considerations must be borne in mind. First, in addition to including all 'wastage', these figures include resignations of teachers moving to jobs in similar institutions. As movement within any profession is both expected and necessary for its continuation, a high 'turnover rate' is not necessarily a cause for alarm. Promotions within the profession, for example, often mean a change of institution, and

geographic mobility (for whatever reason) also necessitates such movements. So although 'turnover rates', like figures on 'wastage', include those leaving the profession, high proportions in either category do not necessarily, or simply, translate into teacher loss.

(iii) Vacancies

Vacancies here refer to advertised vacancies for full-time appointments of at least one term's duration. Vacancy rates can be expressed as a percentage of teachers in post, including full-time regular teachers in (or on secondment from) maintained schools, plus full-time regular divided-service, peripatetic, remedial centre and 'miscellaneous' teachers. DfEE vacancy rates for 1994 for classroom teachers by subject exclude sixth-form colleges, whereas later figures include them. In 1998, DfEE data on teacher vacancies ceased to distinguish between vacancy rates for single science and combined science. Data on teacher vacancies in maintained secondary schools for 1985 to 1990, published in the Department of Education and Science (DES) Statistical Bulletin, were for England only. Those for 1991 to 1993 were from the Department for Education (DFE) Statistical Bulletin, while those for 1993 onwards were from DfEE First Release, School Teachers' Review Body and the DfES Statistics of Education: Teachers in England and Wales. All of these changes make it harder to analyse trends over time.

(iii) Pupil:teacher ratios

The DfES calculate pupil:teacher ratios (PTR) as: 'the full-time equivalent of all the pupils (where a part-time pupil counts as one half) and dividing it by the full-time equivalent of the number of teachers employed (calculated by looking at the number of hours worked by teachers)' (DfES, 2002, p. 7).

Vacancies

Teacher vacancies in Wales

The first important feature of the raw data on teacher vacancies in Wales (Table 1) is that between the academic years 1990/91 and 1995/96 the number of vacancies in both primary and secondary sectors fell dramatically. Unfortunately, data for intervening years are not published but in a five year period vacancies decreased to just over one-fifth of their 1990/91 level. The rise in vacancies in the academic year 1997/98 may be related to the change in recording procedures (see above). Overall, vacancies in Wales are not high, are considerably lower than in the recent past, but show no clear trend, and are lower than in all economic regions in England (see Table 2 and related discussion, below).

Table 1 - Teacher vacancies in maintained schools, Wales 1990/91 to 2001/02

	1990/91	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
Secondary	159	53	38	60	77	42	60	77
Primary[1]	240	35	61	105	49	26	39	31
All	399	88	99	165	126	68	99	108

Source: Form Stats 3 (formerly 618G)

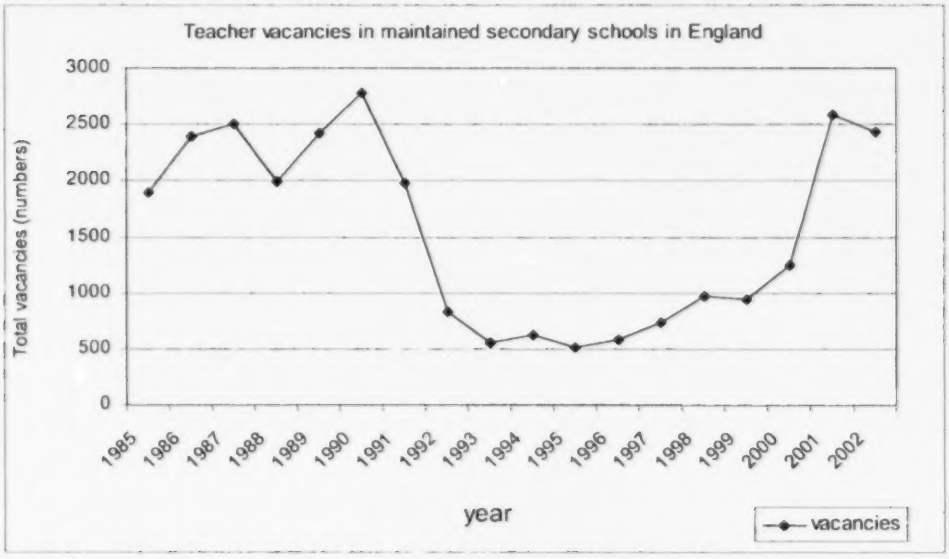
1. Includes nursery schools.

Teacher vacancies in England

In England the lowest level of teacher vacancies in the last decade was experienced between 1992 and 1996 after a period of very high teacher vacancies between 1985 and 1990 (Figure 1). The 'crisis' is, presumably, represented by the rise from 1999 to 2001, when vacancies were at their highest rate since 1990. Between 1998 and 2001 teacher numbers rose by 3.9% while pupil numbers increased by 5.1% and this period saw one of the most dramatic increases in teacher vacancies, from 970 to 2,590. It was only in 2002 that teacher vacancies started to ease - falling to 2,440. The drop was due in part to the narrowing of the gap between teacher and pupil numbers, with teacher numbers

increasing by almost 4% between 2000 and 2002 while pupil numbers increased by only 2.5%.

Figure 1 - Teacher vacancies in maintained secondary schools in England



Source: DfES Statistical First release(2002) Teachers in service and teacher vacancies

The vacancy rate in secondary schools in England and Wales rose from 0.3% in 1995 to 1.4% in 2001, but that for Wales increased at a slower rate from 0.2% to 0.5% (School Teachers' Review Body, 2001). All economic regions reported an increase in vacancy rates between 1995 and 2001, with the biggest increase in the London, South-East and the East of England regions. Vacancies in Wales remain the lowest of any economic region.

Table 2 shows that the problem is most obviously one for London (and as Cunningham, 2000, shows for London, teachers are often drawn to teach in a particular place, and this despite the national nature of the profession – a point to which we return later.

Table 2 – Vacancy rates by Government Office region, 2001

Wales	0.5%
North West	0.6%
Yorkshire and Humberside	0.6%
East Midlands	0.6%
South West	0.7%
North East	1.0%
West Midlands	1.1%
East of England	1.7%
South East	2.1%
Outer London	3.1%
Inner London	4.4%

Source: STRB 2001.

Subject areas in England and Wales

Table 3 shows the vacancy rates for teachers in secondary schools in England and Wales, disaggregated by subject. Data was available as frequencies only for 2001, but an examination of the absolute number of vacancies in this year allows a judgement to be made regarding the scale of vacancy rates in absolute terms. For example, in 2001, Careers was the subject area with the highest vacancy rate, at 4%. However, this represented a recruitment shortfall of only nine teachers, as the total number of careers teachers required is small compared to other subjects. In contrast, figures for the same year show that 407 vacancies were unfilled in Sciences that year but that the vacancy rate was just 1.5%.

Table 3 - Vacancy rates (%) for classroom teachers in secondary schools, by subject, England and Wales, January 1997 to January 2001

	1997	1998	1999	2000	2001	2001 (n)
Maths	0.4	0.7	0.8	1.2	2	421
IT	0.4	0.7	0.9	1.2	2.7	126

Sciences	0.3	0.4	0.5	0.6	1.5	407
Languages	0.5	0.7	0.5	0.7	1.5	250
English	0.4	0.5	0.4	0.6	1.7	366
Drama	0.4	0.2	0.4	0.6	1.6	60
History	0.1	0.2	0.2	0.1	0.5	39
Social Sciences	0.2	0	0.1	0.2	0.4	15
Geography	0.3	0.4	0.1	0.3	0.6	54
Religious Educn.	0.4	0.8	0.5	0.7	1.8	103
DT	0.3	0.7	0.6	0.7	1.2	206
Commerce/business	0.4	0.6	0.4	0.5	1.2	42
Art, craft or design	0.2	0.3	0.5	0.3	0.7	49
Music	0.9	0.7	0.7	0.8	1.8	82
PE	0.2	0.3	0.3	0.2	0.8	104
Careers	0.9	1.8	0.9	1.4	4	9
Other	0.7	0.7	0.8	1.1	1.6	199
Overall	0.4	0.5	0.5	0.7	1.4	2532

Source: DfES annual 618G survey and NAfW annual Stats3 survey

In terms of individual subjects, all vacancy rates were higher in 2001 than they had been in 1997. However, not all subject areas have shown a rise in vacancy rates each year. Vacancy rates in Maths and Sciences, the subject areas with the highest absolute numbers of vacancies, rose each year, as did those for IT. As these three subject areas have high numbers of vacancies, they are the least susceptible to volatility caused by minor absolute changes, and so it is reasonably safe to conclude that there has been a firm trend of rising vacancies in these subjects. In contrast, there are other subjects, notably English and Languages, which also have reasonably high numbers of vacancies, but not year-on-year rises in vacancy rates. Both of these subject areas experienced a fall in vacancy rates in 1999, along with Geography, Religious Education, DT and Careers, only to start rising again in each of the following two years.

Summary

In summary, teacher vacancies in England and Wales are relatively low, but vary by region, subject and sectors (with secondary modern schools having higher vacancy rates than comprehensives, which have higher rates than grammar schools). In 1999 there were a reported 16,000 trained teachers registered as seeking jobs, and many more unemployed but not receiving Jobseeker's Allowance. Even more trained teachers were in alternative employment but would have preferred to be teaching (TES 2002). The problem, therefore, of vacancies is one of regional and subject dispersion, rather than total numbers. To what extent are these figures related to policy changes, the economic cycle, and teacher and pupil numbers?

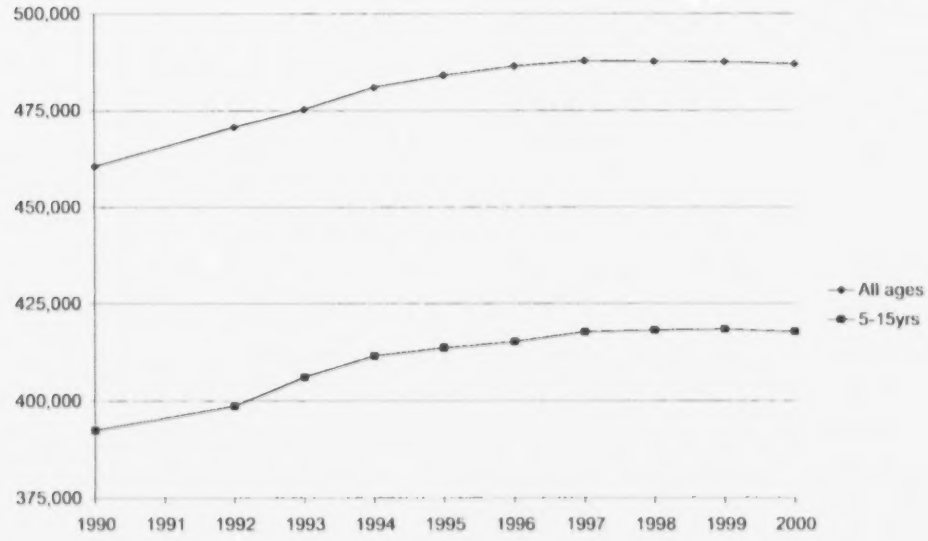
The decline in teacher vacancies after the peak in 1990 has been largely attributed to the economic recession, which saw an increase in unemployment. A number of studies have claimed that the state of graduate labour market can affect the proportion of graduates going into research and training in general (Hughes and O'Connell, 1995, Dolton et al., 1990, Slater, 2000, House of Commons, 1997b). If the findings of these studies were true, we would expect to see an increase in the number of teachers during a period of economic recession. However, teacher numbers had actually declined after 1992. In the last ten years, the lowest number of teacher vacancies was in the period between 1993 and 1997. This was also the period with the lowest number of teachers. Therefore, graduate employment alone cannot explain changes in teacher vacancies (and it also fails to explain regional variations in teacher vacancies). The drop of 237% in two years and 405% in three years imply possible explanations other than economic recession alone. Therefore, we shall now look at the teacher and pupil numbers.

Teacher numbers and pupil numbers

One of the most basic determinants of the number of teachers needed in any education system is the number of young people of school age. It can be seen from Figure 2 that, in

the first half of the 1990s, the number of pupils in Wales rose, before levelling off in 1997 and beginning to decline by 2000. But what implications does such a rise have in terms of the demand for teaching staff? An increase from 460,513 students in 1990 to 486,910 in 2000 represents a rise in school rolls by 26,397 or 5.7%.

Figure 2 – Full-time pupils in schools in Wales 1990/91-2000/01 by age



Source: NafW (2002)

Table 4 shows the different ways data relating to pupil numbers can be calculated in terms of other, related, variables. Despite the growth in pupil numbers, the number of secondary schools has remained constant. Therefore, the number of teachers per school actually increased over the period. Similar patterns appear for other sectors. By 2000/2001 there were 27,067 primary and secondary teachers in Wales (Schools in Wales: General Statistics 2001), and the figure had grown every year over the previous decade.

Table 4 - Provision for secondary education in maintained schools (Wales)

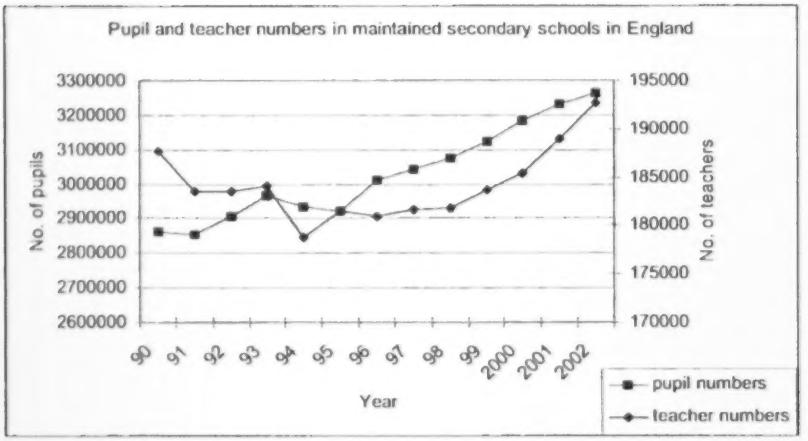
	1980/81	1990/91	1996/97	1997/98	1998/99	1999/00	2000/01

No. pupils:	239,641	185,193	200,288	201,852	204,158	207,916	210,396
FTE teachers	14,440	12,026	12,397	12,228	12,384	12,471	12,692
No. of schools	239	230	229	228	229	228	229
pupils:school	*1,003*	*805*	*875*	*885*	*892*	*912*	*919*
teachers:school	*60*	*52*	*54*	*54*	*54*	*55*	*55*
PTR	*16.6*	*15.4*	*16.2*	*16.5*	*16.5*	*16.7*	*16.6*

Adapted from: *Schools in Wales: General Statistics 2001*

In England, the number of full-time equivalent qualified teachers increased from 161,200 thousand to 232,500 from 1970 to 1980 (figures for England are used because, although figures for England and Wales were provided by the STRB, equivalent figures prior to 1991 are not available). This growth corresponded with an increase in pupil numbers from approximately 2.9 million to 3.9 million (DfEE Bulletin, 2000). From 1980 onwards pupil numbers declined and had fallen to 2.85 million by 1991, the lowest level since 1970. By 1990 there were, in a sense, too many teachers (Figure 3) and their numbers continued to decline until 1994 even though pupil numbers were rising again. Although teacher numbers then increased, the rate of growth of pupil numbers was initially greater. This is significant because, as teacher demand is determined in part by the target pupil:teacher ratio, in order to maintain the existing pupil:teacher ratios more teachers were needed. This may explain the increasing teacher vacancies, and perhaps the beginning of the recent 'crisis'. Since 1999, however, the growth rate of teachers has been greater than that for pupils, and number of pupils may even begin to decline in the next ten years. Teacher numbers are now the highest ever recorded (192,700 in 2002). What impact has this had on pupil:teacher ratios.

Figure 3 – Pupil and teacher numbers in maintained schools in England



Source: DfES (2002b) Statistics of Education – Schools in England

Pupil-teacher ratios

An examination of the data for the 1980s and 1990s shows that the mean pupil:teacher ratio (PTR) for maintained secondary schools in Wales has remained fairly constant. In fact, it is at the same level in the academic year 2000/01 as it was in 1980/81, the earliest year for which data was available (Schools in Wales: General Statistics 2001). The same is true for most institution types (Table 5). By 2002, the school population in Wales had dropped slightly from 499,400 in the previous years to 498,100 and looks set to continue dropping. This means, also, that the average PTR in primary schools dropped to 21.0 and that in secondary schools to 16.4 (National Statistics 2002). By comparison, OECD (2000) figures show that secondary PTRs in Wales for 1998 were already lower than in the UK overall (16.9), and most developed and developing countries, including Canada (22.1), New Zealand (21), Korea (22.8) and the Netherlands (18.5).

Table 5 - PTRs in Schools in Wales by type and sector 1996/97-2000/01

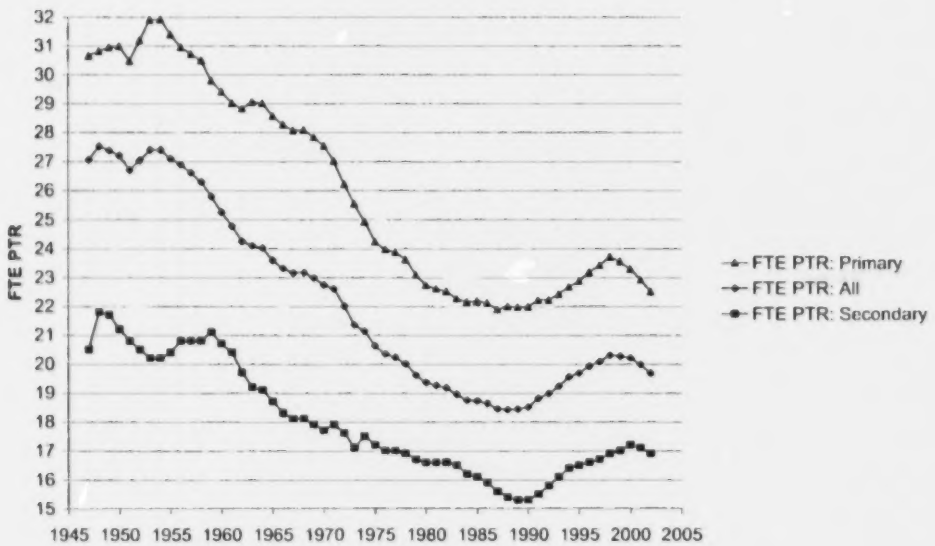
	Nursery	Primary	Second.	Special	Total	Indepen.	All
2000/01	17.3	21.5	16.6	6.8	18.8	9.6	18.4

1999/00	17.3	21.9	16.7	6.7	19	9.8	18.7
1998/99	18.4	22.3	16.5	6.8	19.1	9.8	18.8
1997/98	18.2	23	16.5	6.9	19.5	9.9	19.1
1996/97	19.3	22.6	16.2	6.7	19.1	10	18.7

Source: *Schools in Wales – General Statistics 2001*

Figure 4 shows the pupil:teacher ratios (PTR) for primary and secondary schools in England from 1947 to 2002. From the mid-1950s until the late 1980s the PTR, calculated from aggregate data, decreased steadily and annually. From 1990, however, the PTR began to increase until, after reaching a mini-peak in 2000, it fell again for two consecutive years. It is interesting to note that PTR follow approximately the same trends in all compulsory sectors, with the exception of independent schools. Independent schools have a relatively fixed number of places and, once these are filled, do not concern themselves with those pupils not being placed.

Figure 4 – Full-time equivalent pupil:teacher ratios in England



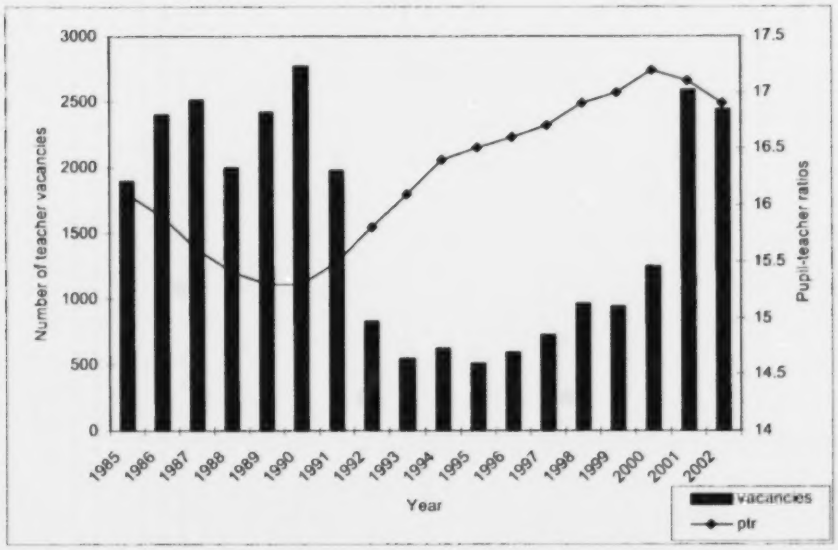
Adapted from: DfES, (2002a).

N.B. Data collected in January each year. The origin of this graph is not zero

The DfES (2002a) caution that "while the number of teachers employed relative to the number of pupils enrolled will have an effect on class sizes, not all teachers will necessarily be in the classroom at any one time" (DfES, 2002, p.7). Smithers and Robinson (1991, p. 103) also note that although class size is an important issue in relation to the staffing of schools, it is not "... principally a teacher supply problem. It is, in part, a matter of policy, and, in part, a management problem to be resolved by management action". This point highlights the notion that solutions to any perceived 'problems' with teacher recruitment and retention do not necessarily have to come from the 'supply' end of the equation. Changing the organisation of schooling can have direct impacts on the requirements of the system itself (see below).

In reality, it is difficult to say when there may be a teacher shortage because the two commonly used indicators of teacher supply (PTRs and teacher vacancies) may not move in the same direction. For example, when teacher vacancies were highest, in 1989 and 1990, the PTR was lowest at 15.3 pupils for every teacher (see Figure 5). Despite this, the common perception at that time was that there was a severe teacher shortage, if not a crisis. Between 1990 and 1995 PTRs increased from 15.3 to 16.5, but this was the period of lowest teacher vacancies. Although PTRs were high, the perception was that there was no shortage and the reason many gave was the economic recession which made it easier to get teachers (even though there were, in fact, no more teachers - see above).

Figure 5 – Teacher vacancies and pupil:teacher ratios in England



Source: DfEE (2002b) Statistics of Education-Teachers in England

The 2000 data show that areas with higher teacher vacancy figures, such as Inner and Outer London and the South-east, operate with correspondingly low pupil-teacher ratios but (paradoxically) larger class sizes. Areas with low teacher vacancies, such as North-east and South-west England, operate with higher ratios but smaller class sizes. This shows that neither vacancy rates nor pupil:teacher ratios are good indicators in themselves of class size. The relationship between the three depends to a large extent on the local organisation of schools and the nature of their pupil and teacher intake.

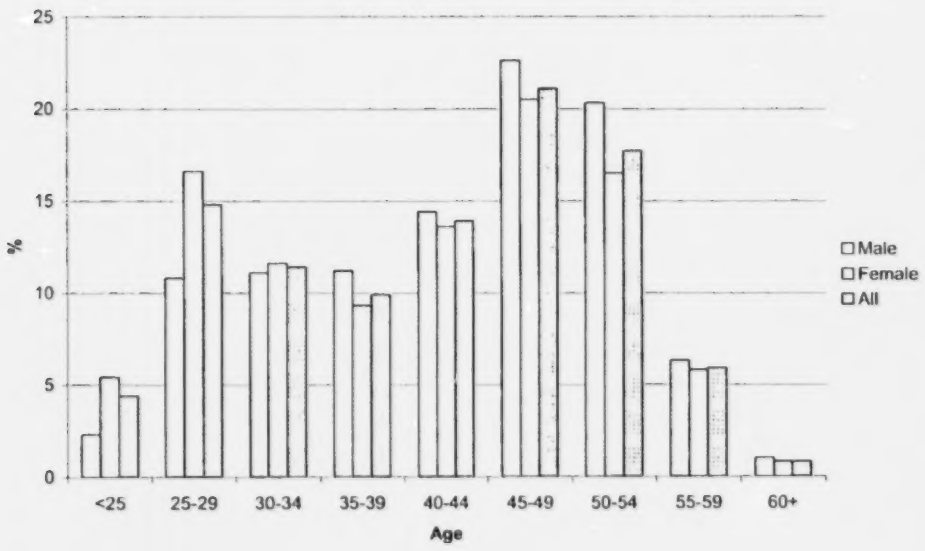
The composition of the teaching population

The age and sex composition of teachers has important implications for teacher supply. Most of the increase in teacher numbers in recent years has been the result of an increase in the number of women in the profession. Women have always outnumbered men in primary schools, and they made up 53.4% of full-time secondary teachers in 1999 compared with 46% in 1985 (Social Trends 30, 2000). This has important implications for teacher supply as women are more likely to take breaks in their career for child-

rearing. More importantly, in shortage subjects such as maths, science and technology, there are still proportionately more men taking higher degrees than women. So this increase in the number of women in teaching is proportionately less likely to increase the number of teachers in these shortage subjects.

The age profile of teachers in England and Wales in the year 2000/01 is shown in Figure 6. The largest proportion of the profession is aged between 45 and 54 years. It is, perhaps, unsurprising that there are relatively few teachers under the age of 25 as only those individuals who enrolled on ITT courses almost immediately after leaving post-compulsory or higher education would attain QTS and be able to enter the profession before that age. Despite this, interviews with headteachers, conducted as part of a major study in the late 1980s (Smithers 1990) revealed that ITT graduates in this age group, preferably with a PGCE qualification, were the applicants most sought after by those making appointments.

Figure 6 – Distribution of full-time teachers by age and gender, March 2000



Source: DfES. Database of Teacher Records.

The small proportion of teachers in the 55 to 59 and 60+ age brackets may be predominantly accounted for by the retirement of women, early retirements and/or retirements due to ill-health. What is less clear, however, is the explanation for the relatively small proportion of teachers in the 30 to 34 and 35 to 39 age groups. These two groups, combined, account for only slightly over 20% of all teachers. This could, of course, be accounted for by historical trends in recruitment to the profession but, as previously mentioned, not all new teachers are graduates in their twenties entering their first profession. Some graduates of ITT courses previously worked in other areas of the labour market or were mature entrants to higher education. Applicants such as those in their thirties are the least likely to be offered places on ITT courses (White et al. 2002). The age profile illustrated in Figure 6, then, is unlikely to be solely the product of historical trends in the recruitment of new entrants to the profession. Indeed, if all previous years showed a similar age profile as the year 2000, the most obvious explanation for the observed pattern would be teachers leaving the profession in their thirties. Indeed in 1999/00, 57.5% of those who left or moved to part-time service were under 40 years of age, many of whom were women (School Teachers' Review Body, 2002). This leads us to a consideration of teacher turnover.

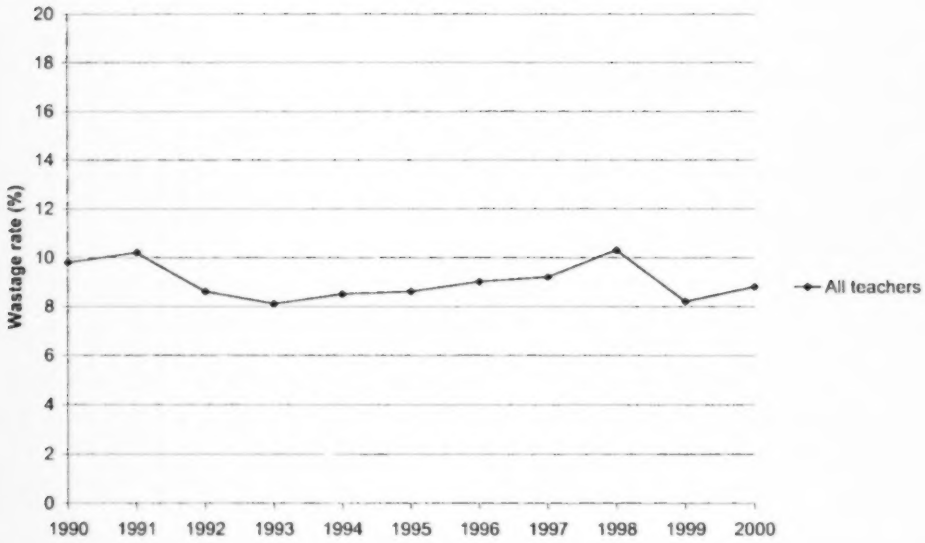
Teacher turnover

The media reports already cited have suggested that an increasing number of teachers are leaving the profession, and this is seen as contributing to a teacher supply crisis. The reasons for this are variously given, including poor pay, workload, increasing bureaucracy and so on. But our analysis shows that, contrary to what the media portrayed, the majority of teachers who leave their posts (or 'resigned') are not leaving teaching, but moving to other schools within the state sector. One of the biggest studies ever conducted on teacher loss found that the majority of those who left the maintained sector (37.5%) were leaving for teaching in another secondary school (Smithers, 1990). Ill-health and early retirement accounted for the next largest proportion of resignations (22.3%). In comparison, those leaving for alternative employment, including training for

a new job, made up just over one-tenth (11.4%) of all teacher movement. A similar study by Ross (2000) found that the majority of teachers (53%) leaving teaching posts in six London LEAs were moving to other teaching posts. Only 20% of resigning teachers were leaving for work outside teaching, while 14% were planning to take a career break and 11% were retiring.

Figure 7 shows the 'wastage rate' for full-time teachers in England and Wales. It must first be noted that the data are accompanied by the following warning, specifiying that "the wastage rate for those aged 50+ in 1997 and 1998 reflects the increase in early retirements brought about by changes to the Teachers' Pension Scheme in April 1997 and September 1997. The subsequent decrease in early retirements resulted in a much lower wastage rate in 1999". There are no particularly remarkable trends in wastage rates in data for the years 1990/91 to 2000/01. Although the proportion of teachers leaving the profession rose year-on-year from 1992/93 to 1997/98, the change in legislation affecting figures in 1998/99 obscures the extent to which this may, or may not, have continued over the following two years. It should be noted, however, that the wastage rate at its peak in 1997/98 (10.3%) was only marginally higher than in 1990/91 (10.2%). Indeed, the wastage rate for teachers younger than fifty was fractionally higher in 1991 (8.1%) than it was in 2000 (8.0%), the last year for which data was available.

Figure 7 – Wastage rates for full-time teachers, England and Wales 1989/90 to 1999/00



Source: DfES, Database of Teacher Records.

What is interesting is the extent to which the wastage rates between the nursery and primary, and secondary sectors are correlated (r = 0.82). It might be expected that there would be different rates of wastage between sectors, as indeed there are, given that working conditions and backgrounds of the teachers vary. What is unclear, however, is why changes in the wastage rates for the two sectors tend to be in the same direction over the course of any given year, and why such a high correlation exists in both the direction and magnitude of the changes. This, perhaps, suggests the influence of factors affecting the whole teaching profession such as changes in pension regulations, rather than factors only one sector, such as changes in classroom conditions.

Destinations of resigning teachers

Resignations by teachers in England and Wales rose from 25,170 in 1994 to 47,930 in 2001 (Employers' Organisation 2002). This, however, does not mean that more teachers are leaving the profession, as the data includes those taking up employment in institutions

similar to the ones they left. Indeed, increased turnover of this type may be considered symptomatic of a healthy internal labour market within the profession. If the proportion of teachers in this sub-group remains constant there will be no 'net losses'. However, a high and growing turnover rate does have accounting implications for the vacancy rate.. The higher the turnover, the higher the vacancy rate will appear in any snapshot figure. However, this would not necessarily reflect the difficulty with which posts were filled, or obtained.

The number who left teaching for employment outside education or for non-employment increased four-fold between 1994 and 2001. However, in proportional terms this group actually constituted a decreasing proportion of the total who resigned. Most of the resignations are the result of people switching schools or moving to other LEAs. 'Natural' wastage due to retirement or maternity accounted for the next largest group. Total resignation and turnover rates can, thus, give a misleading impression of the state of the teaching profession. Those teachers moving from their present school to a similar one do not, presumably, present a major problem for the profession and cannot be reasonably considered as constituting 'wastage'. Retirements, whether due to ill-health or reaching the normal retirement age are usually unavoidable, as is maternity. It is only other types of resignation that can either be considered as a problem or become the subject of any strategies to increase retention in the teaching profession (Table 6).

Table 6 – Destinations of LEA full-time permanent resigning teachers (1993-2001) who left education as a proportion of those who resigned (%)

	1994	1995	1996	1997	1998	1999	2000	2001
Retirement	36.4	37.8	35.3	36.8	17.5	16.6	15.4	13.0
Other employment	2.7	3.4	3.4	3.6	5.8	5.7	5.7	4.4
Maternity	5.7	5.1	5.7	4.9	5.9	6.0	5.3	4.2
Other destinations	9.9	10.4	11.9	12.9	18.5	19.3	16.8	19.11
% left education	54.7	56.7	56.3	58.2	47.7	47.6	43.2	40.7

Source: Employers' Organisation (2002)

School Teachers' Review Body (2002) surveys of teacher resignations and recruitment show that between 1991 and 2000 the proportion of full-time permanent teachers in the secondary sector retiring for age reasons remained fairly constant at between 0.3% and 0.4%. Those retiring for health reasons showed a substantial drop (38%) from 1997 to 1998. This was partly due to the redefinition of ill-health introduced on 1st April 1997 - teachers must now be regarded as permanently unfit to teach, not just unable to teach in the foreseeable future. What is significant is the increase in the proportion of teachers leaving for other employment.

A worrying sign is the relatively high proportion of teachers under the age of 40 who left the profession or moved to part-time service. In 1999/00, 57.5% were under 40 years of age. A higher proportion of women under 40 (61.5%) left the maintained sector compared to men (54%). This coincides with the child-rearing age. The question is how many of these women (many of whom left presumably for child-care reasons) would return. Young women who leave do not necessarily do so for child care reasons, and they are not necessarily leaving schools that are considered to present more difficulties (Kennedy 1992). In fact, teachers who leave the profession are unlikely to return. Studies in the United States, for example, show that teachers returning after a career break do not contribute significantly to the overall supply. Many returners never teach full-time again (Ross 2001, Bird 2002b). Is this the basis for the apparent crisis?

Alternative explanations for the teacher supply 'crisis'

The number of teacher posts in any school is, in part, dependent on how many teachers the school can afford to pay for. Table 7 shows how the funding-per-pupil changed between 1995/96 and 2000/01 for maintained secondary schools in England. Funding-per-pupil fell between 1995 and 1997, the period of lowest teacher vacancies. From 1996 to 2001 pupil funding continued to increase. This coincided with the period when teacher vacancies started to rise. Vacancies are therefore the natural accompaniment of the recent increase in funding. With more money, schools can create more posts. Consequently

there is an increase in the demand for teachers, which is translated into vacancies. As we have seen, these figures are more likely to cause public alarm than the underlying PTRs. Therefore, we are in the paradoxical situation that the current crisis may be as much as product of increased funding per pupil as of increased pupil numbers *per se*.

Table 7 – Changes in funding per pupil in England 1995/96 – 1999/2000

Real-terms index	'95-96	'96-97	'97-98	'98/99	`99-00	'00-01
	100	100	98	99	102	110

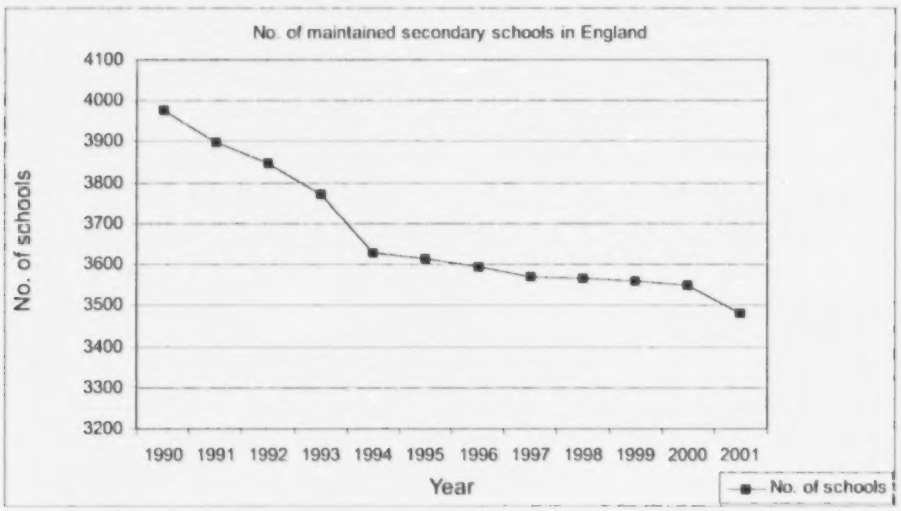
Source: DfES (2002) Departmental annual report

In a memorandum submitted to the House of Commons Education and Employment Committee (House of Commons, 1997a, Appendix 15), it was found that in 1996 and 1997, when there was a budgetary cut, 36.7% of schools surveyed reported having to reduce staffing, with 43.6% predicting they may have to do so the following year. It was calculated that such reductions amounted to a loss of 0.7 teachers per school. In May 2001 a response to the Select Committee on Education and Employment Minutes of Evidence stated: 'It is true that there is increased demand for teachers and in fact extra money which is in the system is being used to create extra posts. Compared with last year it has created 7,700 extra teaching posts and that is part of the reason why demand for teachers is increasing' (House of Commons, 2001 para 40). Therefore, funding-per-pupil should be recognised as one of the reasons for the current increase in demand for teachers (see also See 2002).

Another part of the explanation for the changes in teacher vacancies lies in school numbers. Interestingly, the period between 1991 and 1995 coincided with the early impact of the 1988 Education Reform Act, which saw the introduction of policies such as school choice and pupil-led funding. These policies were partly an attempt to reduce surplus places in some schools. By closing very small schools with surplus places there was greater efficiency in the deployment of staff, since teachers were then more likely to be in larger schools with a higher pupil:teacher ratio (Fidler et al. 1993). The policies resulted in the merger and closure of schools, resulting in fewer schools overall. Fewer,

but larger schools led to fewer teacher vacancies year-on-year from 1990 to 1996, explaining the high PTRs and low teacher vacancies during this period. However, after 1996, as the number of schools continued to decline, teacher vacancies increased. Between 2000 and 2001 the rate of decline in number of schools increased again, partly explaining the drop in teacher vacancies in 2002. Two factors are at play here. One is that the decline in the number of schools in England has slowed down (Figure 8), the other is the increase in pupil funding shown above.

Figure 8– Number of maintained secondary schools in England 1990-2001



Source: DfES Statistics of Education –Schools in England (2001).

Conclusion

The first and most obvious conclusion to be drawn from this re-consideration of existing data is that there is no especial crisis in teacher supply and demand in Wales (or indeed in England). The vacancy rate in Wales is now lower than in the past, and lower than all economic regions of England, for example. There are more teachers in England and Wales now than there ever have been, and pupil numbers are now declining. Over the long-term and for the immediate future, the trend for pupil:teacher ratios is downward.

As we have shown elsewhere, the major limitation in the supply of new teachers is neither the availability nor quality of applicants (White et al. 2002). It is the limits set by recruitment targets to initial teacher training and by the overall graduate population, especially in maths and science.

The problem is one of increasing demand rather than diminishing supply. Teacher shortages, when they do occur, are regional and may vary with subjects (and are exacerbated in Wales by the need for teaching of, and through the medium of, Welsh, accroding to Brace 2002). Some subjects and some type of schools raise more difficulties than others. It is, however, difficult to decide on a precise level of teacher demand. It cannot simply be calculated using data on the number of teachers available and the number of pupils needing to be served. For example, in 1990 there was a purported 'crisis' in teacher supply, despite data showing that vacancy rates and teacher wastage did not differ greatly from previous years, and that overall recruitment to initial teacher training had been increasing (Smithers and Robinson, 1990). It is not clear that the vacancy rate represents much more than a snapshot of teacher turnover between schools, and when funding for teachers increases the vacancy rate tends to rise. Commentators deploring increases in vacancies are, therefore, often deploring increases in the local funding made available to hire teachers. It is also possible for considerable teacher unemployment to co-exist with vacant posts, as it does today. Pupil:teacher ratios are not much better as a simple indicator of teacher demand, because they cannot be simply converted in to class sizes and they hide considerable regional and sectoral variation (and even between schools in some regions and sectors, McCreth et al. 2001).

This is not to say that the reports of teachers and headteachers in other studies are any more accurate than official records (and they have the disadvantages of being less complete, their lower response rates would tend to exagerate the views from schools with problems, and they are snapshots rather than trends in nature). Headteachers complain about having *only* between 5 and 6 applicants for each post, averaged across all subjects including shortage subjects, and all areas including those with population density of 0.2 persons per hectare (Brace 2002). In some cases newly appointed headteachers complain

that filling posts in their school is becoming 'increasingly difficult'. In other cases, headteachers report that, while their school is ok, they have heard that appointments are difficult in other schools, or that unqualified teachers are being used (as they always have been).

Nevertheless, the official figures reveal that to be representative, the profession as a whole needs more men, more older trainees, more disabled trainees, and more from ethnic minorities. To overcome temporary shortages, bureaucratic and managerial tasks for teachers could be minimised, and the number of schools should be kept to a minimum. Institutions in Wales train many more teachers than it employs, and the remainder mostly move to posts in England. Similar problems, for those in London, are reported by Hutchings et al. (2000), but the key difference for Wales is the devolution of its funding of teacher training. It appears easier for teachers trained in Wales to obtain jobs in England than vice versa (perhaps because of language and curricular differences). In order to maintain flexibility in cross-border movement, schools and authorities in Wales should do everything in their power to make it easier for teachers trained and experienced elsewhere in the UK to find posts in Wales. And given the size of this cross-border movement, it currently does not make sense for the funding of teacher training to be devolved to England and Wales separately.

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References

BBC News (2001a) Teacher shortages worst for decades, http://news.bbc.co.uk/1/hi/education.

BBC News (2001b) Why we left teaching?, http://news.bbc.co.uk/1/hi/education.

Bird, E. (2002b) A mature contribution to science and mathematics. Teacher supply: issues and implications. In Donelly, J. (ed.) *The supply of school mathematics and science teachers: issues, evidence and policy options*. Leeds: Centre for Studies in Science and Mathematics Education.

Bird, E. (2002a) A mature contribution to teacher supply?, in Ross, A. (Ed.) *Emerging issues in teacher supply and retention*, Proceedings of the second conference of the Teacher Supply and Retention Project, University of North London, 12th June 2001

Brace, G. (2002) Teacher recruitment and retention in Wales, in GTCW (Ed.) *A 21st Century Teaching Profession for Wales*, Conference Report, Cardiff: General Teaching Council for Wales

Cunningham, P. (2000) *Push and pull factors in teacher retention: the perceptions of teachers*, Institute for Policy Studies in Education, University of North London

Dean, C. (2000) Anxiety mounts over staff shortage. *Times Educational Supplement*. 30th June.

Dean, C. (2001) Staff crisis worsens as thousands quit: schools 'haemorraging' teachers and recruitment cannot keep up. *Times Educational Supplement*, 4th May

DfEE (1998) *Teachers: Meeting the challenge of change*, London: Stationery Office

DfEE Bulletin (2000) *Statistics of education: Class sizes and pupil teacher ratios in England*, London: DfEE

DfEE Statistical First Release (2001) *Teachers in service and teacher vacancies: January 2001*, London: DfEE

DfES (2002a) *Class Sizes and Pupil:Teacher Ratios in Schools in England*. London: HMSO.

DfES (2002b) *Statistics of Education – Teachers in England*, London: The Stationery Office.

DfES Statistical First Release (2002) *Teachers in service and teacher vacancies*, London: DfES

Dolton, P., Makepeace, G. and Hinchley, G. (1990) *Early careers of 1980 graduates*, The Department of Employment, Research Paper 78

Employers Organisation (2002) *Employers' evidence to the school teachers' review body concerning the 1 April 2003 review of pay and conditions*. National employers organisation for school teachers. September 2002. (mimeo).

Fidler, B., Fugl, B. and Esp, D. (1993*) The supply and recruitment of school teachers*. The High Harlow: Longman.

Gorard, S. (2003) *Quantitative methods in social sciences*, London: Continuum

House of Commons (1997a) *Education and Employment Committee First Report*. Teacher recruitment: what can be done? Vol. I. London: The Stationery Office.

House of Commons (1997b) *Education and Employment Committee First Report*. Teacher recruitment: what can be done? Vol. II. London: The Stationery Office.

House of Commons (2001) *Select Committee on Education and Employment Minutes of Evidence*. 1 May 2001

House of Commons Hansard Debates (2000) *Teachers (Supply and Recruitment)* 25 October, Column 287

Howson, J. (2001) Young ones multiply. *Times Educational Supplement* 9 November

Hughes, G. and O'Connell, P. (1995) Higher education and the labour market in Ireland 1981-1991, *European Journal of Education*, 30, 77-103

Hutchings, M., Menter, I., Ross, A., Tomson, D. and Bedford, D. (2000) *Teacher supply and retention in London (1998-99)*, Report for the Teacher Training Agency, London: University of North London School of Education

Hutchins, L. (2001) Gloom of man who sent pupils home. *Times Educational Supplement 23rd March*, p.4

Kennedy, M. (1992) The problem of improving teaching quality while balancing supply and demand. In Boe, E.E. and gilford, D.M. Ieds.) Teacher supply, demand and quality. Conference proceedings, National Research Council. Washington, D.C.: National Academy Press.

Levenson, E. (2001) Recruiters frustrated as they are forced to appoint underqualified. *Times Educational Supplement*, 25th May, p.7

Mansell, W. and Coulter, A. (2000) Staff flee from parent pressure. *Times Educational Supplement*. 11th August, p. 4

McCreth, S., Menter, I., Hutchings, M. and Ross, A. (2001) *Issues in teacher supply and retention*, presentation to Conference on Teacher Supply and Retention, University of North London, 12th June 2001

National Statistics (2002) *Schools in Wales: General Statistics 2002*, SDR 72/2002, Cardiff: National Assembly for Wales

OECD (2000) *Education at a glance: OECD indicators*. Centre for Educational research and Innovation. Indication of educational systems.

Rees, J. (2002) Crisis in the classrooms as they run short of teachers, *Western Mail*, 9th December 2002, p.1

Report of Sir Gareth Roberts' Review (2002) *SET for success: the supply of people with science, technology and mathematics skills*. April 2002.

Ross, A. (2000) *Some teachers' disillusionment with the profession*. Paper presented at the BERA conference in Cardiff. Mimeograph.

School Teachers' Review Body (2000). Written evidence from the department for Education and Employment: Statistical Annex. London: The Stationery Office.

School Teachers' Review Body (2001) *Tenth Report*. London: The Stationery Office.

School Teachers' Review Body (2002) *Eleventh Report*. London: The Stationery Office.

Schoolsnet (2001) Paradox lost. *Educational Journal*. Issue 56. 1 January 2001.

See, B.H. (2002) Teacher shortages: the current 'crisis', in Ross, A. (Ed.) *Emerging issues in teacher supply and retention*, Proceedings of the second conference of the Teacher Supply and Retention Project, University of North London, 12th June 2001

Slater, J. (2000) We've seen it all before: the current teacher crisis is nothing new. *The Times Educational Supplement*. September 8, p. 24.

Smithers, A. (1990) *Teacher loss*. Interim report to the Leverhulme Trust, January. Manchester: School of Education

Smithers, A. and Robinson, P. (1990) *Teacher provision: trends and perceptions*. Manchester: School of Education

Smithers, A. and Robinson, P. (1991) *Teacher Provision: trends and perceptions*. London: HMSO.

Smithers, R. (2001a) Teacher job crisis on eve of new school year. *The Guardian*, 30th August, p. 1

Smithers, R. (2001b) Foreign recruits hit record numbers. *Times Educational Supplement*, 30th August, p.4

Social Trends 30 (2000) *Education and Training*, Office for National Statistics

TES (2002) 'Crisis? What crisis?' *Times Educational Supplement*. 1st November 2002, p.26.

White, P., See, BH., Gorard, S. and Roberts, K. (2002) *Review of teacher supply, quality and retention in Wales*, Cardiff: GTC Wales

Woodward, W. (2001) Four day week threat to pupils. *Times Educational Supplement*. 22 June, p. 13

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